

PRIORITY

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FM NPIC WASHDC
TO DIA
BT

S E C R E T. CITE NPIC 3471.

FOR DIAXX-2

SUBJ: EVALUATION OF GIANT SCALE MISSION S002

25X1

1. GIANT SCALE MISSION S002 FLOWN 21 MARCH 1968 AND PROCESSED AT A FORWARD AREA (67TH), EXCEPT FOR THE MATERIAL [REDACTED]

25X1

WHICH WERE PROCESSED AT BEALE AFB. THE MISSION EMPLOYED FIVE OPTICAL SENSORS: A LEFT AND RIGHT TECHNICAL OBJECTIVE (AR AND AL) A LEFT AND RIGHT OPERATIONAL OBJECTIVE (CR AND CL) AND A VERTICAL TERRAIN OBJECTIVE (B). ONLY THE TECHNICAL AND OPERATIONAL OBJECTIVE MATERIAL IS EVALUATED IN THE REPORT. EXPOSURE AND PROCESSING DATA WERE NOT AVAILABLE, THEREFORE NPIC COULD NOT DETERMINE WHETHER THE EXPOSURES AND THE PROCESSING WERE OPTIMUM (THAT IS UP TO SPECIFICATIONS FOR THE SYSTEM). SINCE NO BAR TARGETS WERE IMAGED ON THE FILM ALL GROUND RESOLUTION FIGURES ARE EMPIRICAL ESTIMATES BASED ON PREVIOUS EVALUATIONS OF SIMILAR SENSORS. THE GROUND RESOLUTION FIGURES IMPLY A BAR PLUS A SPACE, THUS A FIGURE OF [REDACTED] INDICATES THAT A [REDACTED] OBJECT COULD BE DETECTED. CLOUDS OBSCURE APPROXIMATELY 50 PERCENT OF THE GROUND IMAGERY AND HAZE DEGRADES MOST OF THE BALANCE OF THE MISSION.

25x1

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2. THE ORIGINAL NEGATIVES (FIRST GENERATION) AND SECOND GENERATION POSITIVE REPRODUCTIONS WERE AVAILABLE FOR THE EVALUATION.

A. TECHNICAL OBJECTIVE CAMERAS: APPROXIMATELY 90 PERCENT OF THE PHOTOGRAPHY WAS ACQUIRED ABOVE 35 DEGREES OBLIQUITY APPARENTLY TO INCREASE THE SWATH WIDTH OF THE OPTICAL SENSORS.

(1) LEFT TECHNICAL OBJECTIVE CAMERA (AL): THE GROUND RESOLUTION IS FAIR TO POOR. THE BEST GROUND RESOLUTION DETECTED AT NADIR IS ESTIMATED TO BE [REDACTED] TYPICAL GROUND RESOLUTIONS AT NADIR ARE ESTIMATED TO BE [REDACTED] WHERE ATMOSPHERICS ARE NOT A FACTOR. NO ATTEMPT WAS MADE TO ESTIMATE THE GROUND RESOLUTIONS AT HIGH OBLIQUITIES SINCE MOST OF THIS IMAGERY IS DEGRADED BY ATMOSPHERICS. THE DENSITY AND CONTRAST OF THE NEGATIVES IS TYPICAL OF NEGATIVES ACQUIRED OVER THIS TYPE TERRAIN AT THE SOLAR ELEVATIONS ENCOUNTERED ON THE MISSION. THE OBLIQUE FRAMES RANGE FROM ADEQUATE DENSITY IN THE FOREGROUND TO THIN DENSITY IN THE BACKGROUND. THE CONTRAST OF THE REPRODUCTIONS IS SOMEWHAT LESS THAN TYPICAL. THERE ARE NUMEROUS MINUS DENSITY STREAKS, PARALLEL TO THE MAJOR AXIS, THROUGHOUT THE MISSION. EDGE STATIC IS PRESENT ALONG BOTH EDGES OF THE FILM, FRAMES 130 AND 131 CONTAIN EMULSION GOUGES AND FRAMES 132 AND 133 HAVE WATER OR CHEMICAL INDUCED EMULSION LIFTS. CAMERA OFF/ONS

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Declassification Review by NGA

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WITH ASSOCIATED FOGGED AREAS, INDUCED BY MINOR LIGHT LEAKS, OCCUR BETWEEN FRAMES 180/181 AND 249/250. BANDING, PARALLEL TO THE MAJOR AXIS OF THE FILM IS DETECTABLE THROUGHOUT THE MISSION ALTHOUGH NOT READILY APPARENT IN MOST FRAMES. AREAS OF MINOR FOGGING OCCUR INTERMITTENTLY AND EXTEND AS MUCH AS 2.0 INCHES INTO THE FORMAT FROM 30TH EDGES (FRAME 510). A PLUS DENSITY STREAK, 0.3 INCHES LONG, ALSO CAN BE DETECTED INTERMITTENTLY (FRAME 530). PLUS DENSITY SPOTS, POSSIBLY PROCESSOR INDUCED, COMMENCE IN FRAME 222 AND ARE PRESENT

GROUP 1
Excluded from automatic
downgrading and
declassification

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RANDOMLY THROUGHOUT THE LAST 386 FRAMES. FRAME 608 IS THE LAST TITLED FRAME ON THE LEFT TECHNICAL OBJECTIVE CAMERA MATERIAL.

(2) RIGHT TECHNICAL OBJECTIVE CAMERA (AR): THE RESOLUTIONS, DENSITY, CONTRAST AND FOGGED AREAS ARE THE SAME AS THE LEFT CAMERA. THE CAMERA OFF/ONS OCCUR BETWEEN FRAMES 192/193 AND 245/246. A MINOR PLUS DENSITY STREAK VARYING FROM 0.5 TO 2.0 INCHES IN LENGTH APPEARS INTERMITTENTLY FROM FRAME 84 TO THE END OF THE MISSION. FRAMES 597 THROUGH 601 ARE FOGGED (APPARENTLY ASSOCIATED WITH THE FINAL CAMERA OFF). FRAME 601 IS THE LAST TITLED FRAME ON THE RIGHT TECHNICAL OBJECTIVE CAMERA MATERIAL.

B. OPERATIONAL OBJECTIVE CAMERAS: THE OOC MATERIAL PROVIDES GROUND RESOLUTIONS OF [REDACTED] AT NADIR. THE DENSITY AND CONTRAST 25X1

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OF THE NEGATIVES IS TYPICAL OF NEGATIVES ACQUIRED OVER THIS TYPE TERRAIN AT THE SOLAR ELEVATIONS ENCOUNTERED ON THE MISSION. THE CONTRAST OF THE REPRODUCTION IS SOMEWHAT HIGHER THAN TYPICAL.

(1) LEFT OPERATIONAL OBJECTIVE CAMERA (CL): THE TIMING DOTS BEGIN 0.75 INCH AFTER THE START OF SCAN AND EXTEND 0.75 BEYOND THE END OF SCAN. FOGGING OF THE FILM, ASSOCIATED WITH THE DATA CHAMBER, ENCROACHES APPROXIMATELY 0.25 INCH INTO THE IMAGERY BUT THE DEGRADATION IS MINOR. A CREASE, PARALLEL TO THE MAJOR AXIS OF THE FILM ADJACENT TO THE TITLED EDGE IS PRESENT FROM FRAME 622 TO FRAME 643. THE EVENTS COUNTER AND THE TITLED FRAME NUMBER ARE IDENTICAL. FRAME 713 IS THE LAST TITLED FRAME ON THE LEFT OPERATIONAL OBJECTIVE CAMERA MATERIAL.

(2) RIGHT OPERATION OBJECTIVE CAMERA (CR): THE TIMING DOT AND FOGGED AREA ANOMALIES ARE THE SAME AS THE LEFT CAMERA. THE EVENTS COUNTER IS 20 AHEAD OF THE TITLED FRAME NUMBERS. PLUS AND MINUS DENSITY BANDS, 0.10 INCHES WIDE, PARALLEL TO THE MAJOR AXIS 0.50 TO 1.25 INCHES FROM THE TITLED EDGE ARE PRESENT THROUGHOUT THE FIRST 230 FRAMES, THE DEGRADATION IS MINOR AND THE ORIGIN IS UNKNOWN. FRAME 689 IS THE LAST TITLED FRAME ON THE RIGHT OPERATIONAL OBJECTIVE CAMERA MATERIAL.

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3. MISSION RECORDER SYSTEM (MRS) CORRELATION

A. TECHNICAL OBJECTIVE CAMERAS: A FAIR CORRELATION WAS OBTAINED BETWEEN THE MRS AND THE TECHNICAL OBJECTIVE CAMERAS. THERE ARE TEN FRAMES OF PHOTOGRAPHY FROM THE RIGHT TECHNICAL OBJECTIVE CAMERA BETWEEN THE MRS PRINTOUT LINES 182 AND 183; AND 12 FRAMES FROM THE LEFT CAMERA BETWEEN LINES 168 AND 169. THE FIRST TWO LINES OF MRS DATA APPEAR ERRONEOUS, HOWEVER, AS THE MISSION PROGRESSES, MANY OF THE LINES CORRELATE EXACTLY. IF A CORRECTION IS MADE BY ADDING 10 TO ALL RIGHT CAMERA FRAMES AFTER FRAME 182 AND 12 TO ALL LEFT CAMERA FRAMES AFTER FRAME 168 THE MRS CORRELATES TO WITHIN PLUS OR MINUS TWO LINES OF DATA. THE CLOCKS ON BOTH CAMERAS HAVE A MINUS FIVE SECOND BIAS THROUGHOUT THE MISSION. THE PRINTOUT OF THE POINTING ANGLE FOR THE LEFT CAMERA MALFUNCTIONED AFTER TITLED FRAME 240.

B. OPERATIONAL OBJECTIVE CAMERAS: A FAIR CORRELATION WAS OBTAINED BETWEEN THE MRS AND THE OPERATIONAL OBJECTIVE CAMERAS. THE EVENTS COUNTER ON THE MATERIAL FROM BOTH CAMERA UNITS CORRELATED TO WITHIN FOUR FRAME NUMBERS OF THE MRS LINES OF DATA. THE FIRST

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3 LINES OF DATA APPEAR ERRONEOUS. AT THE OFF/ON (FRAME 472 OF THE RIGHT CAMERA) THERE IS A DIFFERENCE OF ONE BETWEEN THE LINE OF DATA IN THE MRS AND THE FRAME NUMBER ON THE MATERIAL FROM THE RIGHT CAMERA

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AND A DIFFERENCE OF FOUR BETWEEN THE MRS AND THE MATERIAL FROM THE LEFT CAMERA. THE CLOCKS ON BOTH CAMERAS HAVE A PLUS FIVE SECOND BIAS THROUGHOUT THE MISSION.

4. PHOTO INTERPRETATION SUITABILITY: ONLY LIMITED PHOTOGRAPHY IS AVAILABLE WHERE ADVERSE ATMOSPHERIC CONDITIONS DO NOT DEGRADE THE PHOTOGRAPHY. THIS IS ESPECIALLY TRUE OF THE TECHNICAL OBJECTIVE CAMERAS. WHERE ATMOSPHERIC CONDITIONS DO NOT INTERFERE, THE INTERPRETATION SUITABILITY IS CONSIDERED GOOD FOR THE OPERATIONAL OBJECTIVE CAMERAS IN ISOLATED INSTANCES AND FAIR TO POOR FOR THE TECHNICAL OBJECTIVE CAMERAS.

5. MISSION SUMMARY: CLOUDS AND HEAVY HAZE SERIOUSLY LIMIT THE AMOUNT OF IMAGERY AVAILABLE FOR EVALUATION AND INTERPRETATION. IMAGED FOG, BANDING, AND INDIVIDUAL CAMERA ANOMALIES REPORTED ABOVE CAUSED ONLY MINOR DEGRADATION. THE OPERATIONAL OBJECTIVE CAMERAS PROVIDE THE BEST IMAGERY FROM THIS MISSION. THE BEST IMAGERY IS PRESENT ON THE SECOND LEG WHERE THE VEHICLE ALTITUDE IS 70,000 FEET; AS OPPOSED TO 75,000 TO 80,000 FOOT ALTITUDES FOR THE FIRST LEG. OVERALL THE PHOTOGRAPHIC PRODUCTS FROM THIS MISSION WHICH WERE TECHNICALLY EVALUATED AND REPORTED ABOVE DO NOT APPEAR TO BE REPRESENTATIVE OF THE POTENTIAL OF THE SYSTEM CAPABILITY AS PREVIOUSLY DEMONSTRATED.

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END OF MESSAGE